Section 6. Black Sea Bass

Introduction

Black sea bass (*Centropristis striata)* are a bottom dwelling marine fish found from Maine to the Florida Keys and into the Gulf of Mexico. For management purposes, they are considered as two stocks with the northern stock extending from North Carolina to Maine. Black sea bass in the Mid-Atlantic region typically breed offshore in deep waters from June through October. Fish typically become sexually mature between age 2 and 5 and can live as long as 15 to20 years. Black sea bass are protogynous hermaphrodites with an estimated 30-40% of females developing male reproductive organs at around age 5. Larval development takes place offshore in open water. Juvenile black sea bass move inshore to nursery areas in estuaries, bays, and sounds where they find shelter in beds of submerged aquatic vegetation (SAV), oyster reefs, and man-made structures in shallow, inshore areas. They feed primarily on crustaceans such as shrimp, isopods, and amphipods. Juveniles remain in the Chesapeake Bay until December and then return in the spring. They typically prefer salinities of 18 parts per thousand (PPT) or greater. As the fish grow, they eventually leave the shallow, inshore areas for deeper waters around age 3. Adult black sea bass typically associate with rocky or rough ocean bottoms such as found around wrecks or reefs.

Along the Atlantic coast, black sea bass are one of three species managed together because they are typically caught together by the same gear. The other two species are scup and summer flounder. The Atlantic States Marine Fisheries Commission (AMFSC) and the Mid-Atlantic Fishery Management Council (MAFMC) jointly manage all three species. The joint endeavor was developed because a significant portion of the catch is taken from state (0-3 miles offshore) and federal waters (3-200 miles offshore). Both the ASMFC and the MAFMC completed and adopted plans for summer flounder followed by amendments for black sea bass and scup several years later. Several amendments and addendums (Refer to the Section 16 for more details) have been jointly developed by ASMFC and the MAFMC since the adoption of the plans, and provide a comprehensive management program for all three species.

Chesapeake Bay FMP

A fishery management plan (FMP) for black sea bass in Chesapeake Bay and along the Atlantic coast was developed and adopted in 1996. At that time, the black sea bass stock was overfished. The main purpose of the FMP was to reduce fishing mortality especially on immature black sea bass. Since the Chesapeake Bay is a nursery area for juvenile black sea bass, there were several habitat actions that integrate the Chesapeake Bay Program’s habitat goals such as protecting SAV, wetlands and reef structures. A synopsis of the management strategies and actions can be found on table 6.1. Under the coastal quota and other management actions, fishing mortality has been reduced and the spawning stock biomass has increased. After an 8-year rebuilding scenario, the black sea bass coastal stock is no longer considered overfished.

Atlantic Coast FMP

Coastal management of black sea bass was started as one component of a multi-species FMP for summer flounder, black sea bass and scup. Because the status of summer flounder was critical, a coastal plan was developed first and adopted in 1990. Plans for black sea bass and scup were postponed while management strategies were implemented for summer flounder. In 1996, a coastal FMP was developed for black sea bass as Amendment 9 to the Summer Flounder FMP. The main components of Amendment 9 were to define overfishing for the black sea bass coastal stock and establish a framework for reducing fishing mortality over an 8-year period.The objectives of the Amendment were to reduce F especially on immature fish; increase spawning stock biomass (SSB); improve yield; promote compatible regulations among the coastal states; and improve enforcement of the regulations. Reductions in F were accomplished through a coast wide commercial quota and recreational harvest limits. Minimum size limits, creel limits and seasonal closures were used to reduce F. In 1998, the overfishing definition was revised and a state-by-state allocation system was developed. These management measures have been successful at reducing exploitation (ASMFC 1996). In the late 1990s, the black sea bass stock was overfished. The coastal stock was at low levels of abundance and the age and size structure of the stock was truncated. Fishing mortality at that time was estimated around 0.68. Overfishing is no longer occurring. The stock structure has improved and biomass has increased. Coastal states are required to implement the ASMFC/MAFMC management recommendations and complete an annual report (Appendix 4).

Stock Status

There is no formal stock assessment for black sea bass in the Chesapeake Bay. The black sea bass coastal stock was assessed at the 39th Stock Assessment Workshop (39th SAW) in June 2004. The Stock Assessment Review Committee (SARC) found that the stock is no longer overfished and overfishing is not occurring. The overfishing definition is F= 0.32. Current estimates of F are below the overfishing rate. Coastal biomass reached a high in 2002 but indices declined slightly in 2003 and 2004. The average exploitable biomass in 2002-2004 (1.43 kg/tow) exceeded the biomass threshold of 0.98 kg/tow (1977-1979 avg) or was 55% above the threshold. Recruitment is also determined from the spring survey. Good year classes were produced in 1988, 1990-1992 and 1995, and poor recruitment was observed in 1993, 1994, 1996-1998.

The only survey in Maryland that encounters black sea bass on a regular basis, is the Maryland Coastal Bays Finfish Investigation. In 2003, there were 59 black sea bass caught in 140 trawls and 5 black sea bass caught in 38 seines. The trawl index from the above survey ranked 23rd of 32 years of surveying.

Fishery Statistics

The black sea bass fishery is managed using a total allowable catch (TAL) for the Atlantic coast from North Carolina to Maine. The commercial fishery receives 49 percent of the total allowable landings for black sea bass and the recreational fishery receives the remaining 51%. For 2004, the commercial quota was 3.77 million pounds and the

recreational quota was 4.01 million pounds. Each state is allocated a percentage of the TAL based on historic landings. Maryland and Virginia are allocated 11% and 20%, respectively, of the coast wide total.

Commercial landings have varied without trend since 1981, ranging from a low of 2.0 million pounds in 1994 to a high of 4.3 million pounds in 1984. The coastwide quota has restricted landings over the years and the average TAL has been approximately 2.7 million pounds (1998 to 2002). The 2003 landings of 3.0 million pounds were a 15% decrease relative to the 2002 landings of 3.5 million pounds. Most commercial landings are taken by otter trawls, fish pots, and traps. In Maryland, the 2004 commercial black sea bass harvest was 358,139 pounds, below their commercial allocation of 424,600 pounds. In Virginia, the 2004 commercial black sea bass harvest was 437,975 pounds, well below their commercial allocation of 772,000 pounds (Figure 6.1).

Black sea bass are an important recreational species along the mid-Atlantic. In 1998 and 1999 estimated recreational landings decreased substantially relative to the levels of the early to mid 1990's. Since 2000, estimated landings have averaged 4 million pounds. In Maryland and Virginia, recreational harvest of black sea bass has been highly variable (Figure 6.2). The recreational fishery is regulated through size limits, possession limits and seasonal closures.

References

ASMFC. 1996. Amendment 9 to the Summer Flounder Fishery Management Plan, Atlantic States Marine Fisheries Commission and Mid-Atlantic Fishery Management Council.

Figure 6.1 Commercial Landings for Black Sea Bass from Maryland and Virginina, 1950-2003

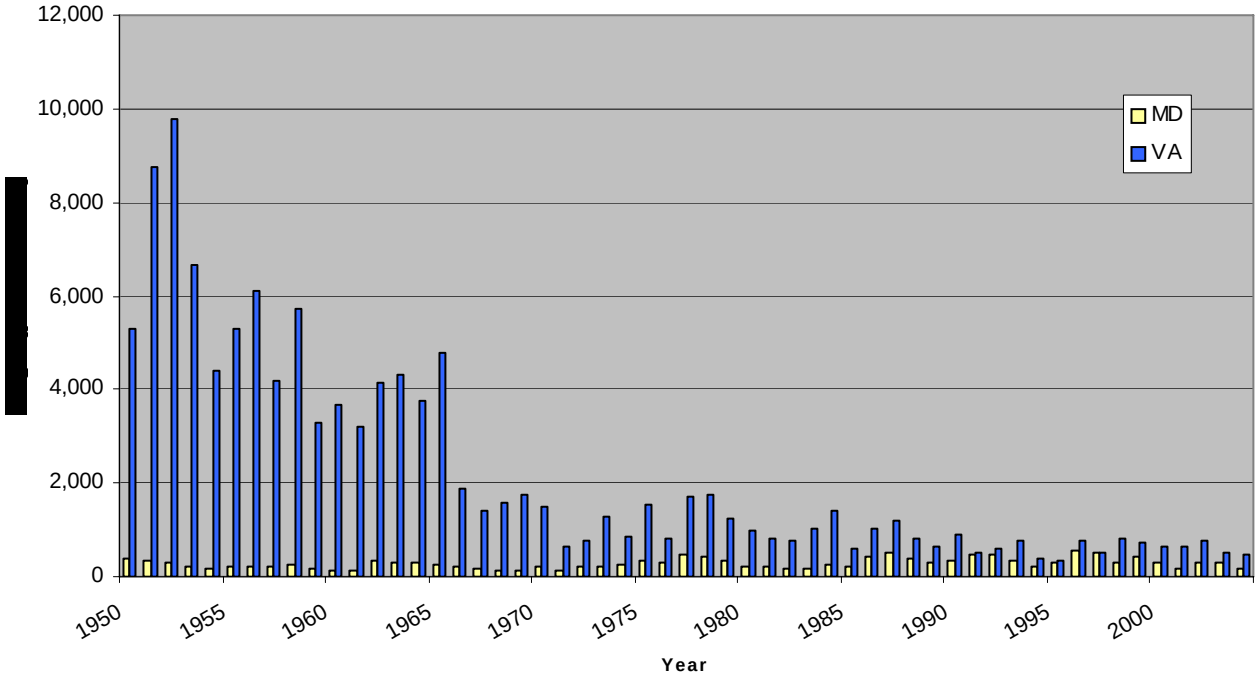

Figure 6.2 Estimated Recreational for Black Sea Bass, Maryland and Virginia, 1981-2003

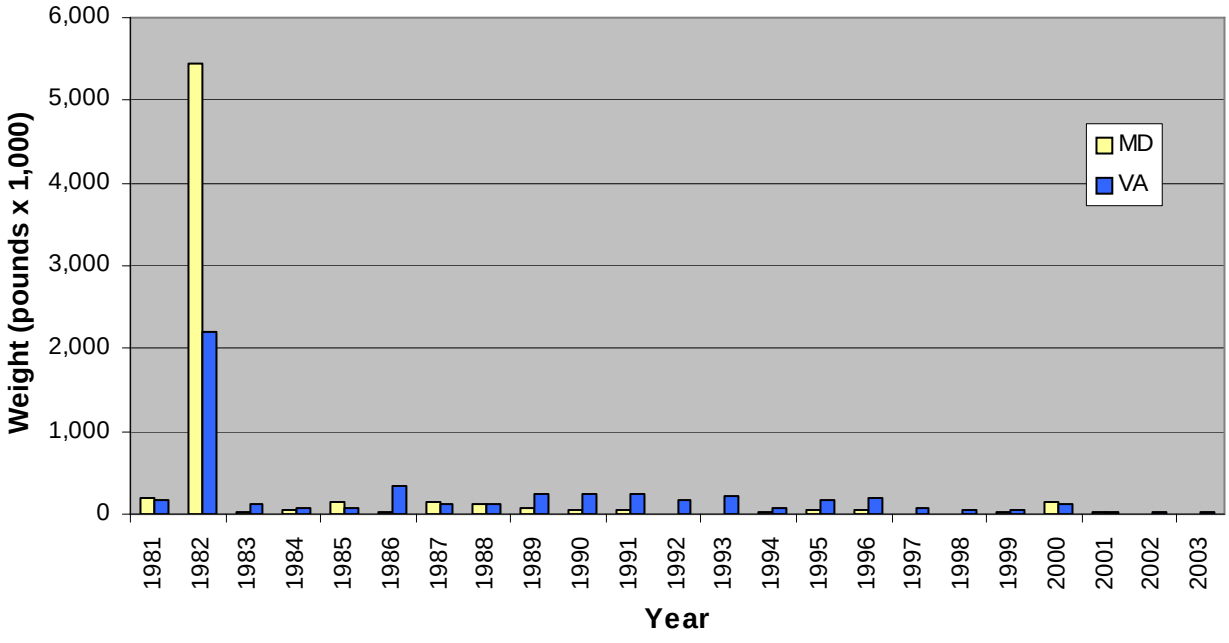

Table 6.1.1996 Chesapeake Bay Program Black Sea Bass Implementation (10/05)

Problem Area	Action	Date	Comments
`	1.1.1 A) The jurisdictions will implement a 9" minimum size in 1996 and 1997. Beginning in 1998, the minimum size will be annually determined by the MAFMC. The states will implement these minimum sizes in state waters	1996 Evaluated annually	Black Sea Bass are no longer considered overfished and biomass is increasing. Due to improved stock conditions, the coastal quota has increased. The minimum size limit for the commercial fishery is 11 inches and 11.5 inches for the recreational fishery with a 25 fish/person/day creel limit.
	1.1.1 B) Based on annual MAFMC recommendations, additional restrictions may be implemented to reduce F to reach plan target levels	Continuing	Amendment 13 of the MAFMC and ASMFC's Summer Flounder, Scup, and Black Sea Bass FMP changed the management of the commercial fishery from coastal quarterly quotas to state by state quota. MD and VA receive 11% and 20% of the commercial TAL. The 2004 TAL was 7.78 million pounds.
	1.2 A) The jurisdictions will investigate innovative devices for reduction of juvenile finfish bycatch in non-selective fisheries	Continuing	MD has a 1,000 pound threshold instead of 100 pounds
	1.2 B) VA and MD will work with MAFMC/ASMFC to develop and require the use of more efficient gear to reduce bycatch /discards	Continuing	MAFMC funded research on the use of escape vents in fish pots.
	1.2 C) MD will require a 4.0" mesh for trawlers landing more than 100 pounds of black sea bass. VA and PFRC will continue to ban trawling in state waters and the Potomac	Continuing	Mesh sizes have been adjusted for the minimum size requirements.
	1.2 D) VA and MD will require escape vents in black sea bass pots, based on MAFMC/ASMFC recommendations	Continuing	Chesapeake Bay jurisdictions are in compliance with vent requirements in pots and traps.
	1.2 E) The jurisdictions will define a black sea bass pot for enforcement requirements, as recommended by the MAFMC	1997-2002	Will not be implemented because fisherman use both lobster pots and fish traps to catch lobster and black sea bass
	1.2 F) VA and MD will require pots and traps to have bio-degradable hinges or fasteners on one door	1997-2002	CBP jurisdictions have implemented bio-degradable hinges on door fasteners on pots and traps

Table 6.1.1996 Chesapeake Bay Program Black Sea Bass Implementation (10/05)

Problem Area	Action	Date	Comments
2. Stock Assessment and Research Needs	2.1 A) Research on effects of sex reversal on yield, spawning stock, and on other parameters will be encouraged. VMRC and VIMS will attempt to determine what size sex reversal occurs in the region B) VIMS will continue its annual trawl survey	Continuing	
	2.2 A) VMRC's Stock Assessment Program will continue to collect data from commercial catches	Continuing	
	2.2 B) Research on migration between inshore and offshore will be encouraged . Tagging studies may be funded from VA saltwater fishing licenses	Continuing	In VA, black sea bass is 1 of 8 species currently being tagged in recreational tagging study.
	2.2 C) PRFC will collect information on black sea bass and discarded in the Potomac River pound net fishery	1996-1997	Inactive since PRFC rarely records any BSB catch.
	2.3 A) The jurisdictions will collect information on commercial landings	Continuing	Chesapeake Bay jurisdictions are in compliance
	2.3 B) VA will continue to supplement MRFSS data with more detailed catch statistics at the state level	Dependent on the availability of funds	
	2.3 C) MD will require mandatory reporting for all black sea bass landed in MD, whenever harvested	Continue	Commercial harvest statistics have improved.
3. Habitat Degradation	3.1a (A&B) MD and VA will continue implementation of the 1994 Oyster FMP and Aquatic Reef Habitat Plan	Continuing	CBP jurisdictions have developed an Oyster Management Plan (2004) which combines the FMP and habitat objectives
	3.1b A) Jurisdictions will continue to maintain, expand and improve their artificial reef programs.	Continuing	Maryland terminated its program in 1996. In VA, artificial reefs are being funded through Recreational Advisory Board..
	3.1b B) VA prohibited use of all gear except recreational rod and reel, hand-line, spear, or gig on four artificial reefs in state waters	Continuing	All artificial reefs created by funds from recreational license revenues adhere to the gear type prohibition.
	3.2a) Jurisdictions will protect existing SAV beds from further degradation as recommended by Chesapeake Bay SAV Policy Implementation Plan.	Continuing	MD and VA both adopted legislation in 1998 that prohibits hydraulic clamming (and crab dredging in VA) in or near SAV beds.
	3.2b) Jurisdictions will set and achieve regional water and habitat quality objective that will result in the restoration of SAV through natural revegetation.	Continuing	2000 CBP Phosphorus reductions goals met. Nitrogen reduction goals not met

Table 6.1.1996 Chesapeake Bay Program Black Sea Bass Implementation (10/05)

Problem Area	Action	Date	Comments
	3.2c) MD and VA will set regional SAV restoration goals, as recommended by the Chesapeake Bay SAV Policy Implementation Plan	Continuing	A new SAV goal has been adopted (2003).
	3.3 Jurisdictions will protect wetland habitat by defining the resource through inventory and mapping, protecting existing wetlands, restoring and creating wetlands and improving education and furthering wetland research	Continuing	Chesapeake Bay jurisdictions have developed and implemented a wetlands strategy
	3.4 A) Based on the 1992 baywide nutrient reduction plan reevaluation, the jurisdictions will expand programs to include tributaries, intensify nonpoint source control, and improve point and nonpoint control technologies	Continuing	Programs have been expanded to the tributaries
	3.4 B) Based on the Chesapeake Bay Toxics Reduction Strategy Revaluation Report, the jurisdictions will target "Regions of Concern" and "Areas of Emphasis" for pollution prevention, ensure revised regulatory programs are consistent with pre-existing regulatory mandates, identify and classify regions according to level of contaminants and identify areas of low level contamination.	Continuing	Maps that indicate regions of concern for living resources have been developed
	3.4.1 C) The jurisdictions will continue to develop, implement and monitor their tributary strategies to improve water quality.	Continuing	Chesapeake 2000 agreement continues the commitment to improve water quality and habitat for living resources in the Bay.

ASMFC= Atlantic States Marine Fisheries Commission CBP= Chesapeake Bay Program FMP= Fisheries Management Plan
MAFMC= Mid-Atlantic Fisheries Management Council PRFC= Potomac River Fisheries Commission SAV= Submerged Aquatic Vegetation
VIMS= Virginia Institute of Marine Science VMRC= Virginia Marine Resources Commission

* Black sea bass, summer flounder and scup are considered as a multispecies group because they are often caught together while harvesting. See the Summer Flounder Implementation table for additional comments. Scup are not managed under a Chesapeake Bay Program FMP but under a MAFMC FMP. The most recent stock assessment for scup indicates that the stock is no longer considered overfished. Abundance indices exceed the biomass index threshold. The high biomass level combined with a decrease in exploitation and good recruitment has significantly affected the stock. Although the TAL was increased during 2003, reducing fishing mortality and discards is recommended to continue to rebuild the stock.